

Pending Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 4. (canceled)

5. (Amended) A method for determining and controlling the material flow of continuous-cast slabs in transport and processing paths between the continuous-casting installation and a rolling mill by monitoring and optimizing the temperature on the transport and processing paths, said method comprising the steps of:

a. determining a temperature of the liquid phase of the continuous-cast slab at a mold exit of the continuous-casting installation and physical parameters of the continuous-cast slab including temperature-dependent material values comprising at least one of density ρ , specific heat C_p , thermal conductivity λ , and scale properties;

b. during the material flow of continuous-cast slabs in the transport and processing paths, measuring a surface temperature of the continuous-cast slab over time and determining an amount of heat and a temperature profile of the continuous-cast slab over time by calculating the convective mixing of the amount of heat contained in the continuous-cast slab and the time-dependent heat loss from the inhomogenously cooling of the continuous-cast slab, wherein the step of calculating comprises using a mathematical-physical model calculated using one of a two-dimensional finite element method, a finite difference method, and software using formulas derived from off-line studies; and

c. controlling the material flow of the continuous-cast slab in the transport and processing paths between the continuous-casting installation and rolling mills via a slab-monitoring system of the continuous-casting installation using the measured surface temperature of the continuous-cast slab and the amount of heat and the temperature profile determined in said step b. as an input to the slab-monitoring system.

6. - 7. (canceled)

8. (Amended) The method of claim 5, wherein said step c. further comprises automatically controlling the material flow via the slab monitoring system based on the amount of heat and the temperature profile determined in said step b. and the measured surface temperature of the continuous-cast slab.

9. (canceled)